



[4910-13-P]

## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2014-0129; Directorate Identifier 2013-NM-105-AD]**

**RIN 2120-AA64**

**Airworthiness Directives; Bombardier Inc. Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** We propose to supersede Airworthiness Directive (AD) 2011-15-09, which applies to certain Bombardier, Inc. Model DHC-8-400, -401, and -402 airplanes. AD 2011-15-09 currently requires repetitive inspections for proper operation of the main landing gear (MLG) alternate extension system (AES), and corrective actions if necessary. Since we issued AD 2011-15-09, we have determined that, for certain airplanes not affected by AD 2011-15-09, a different MLG AES cam mechanism assembly was installed resulting in input lever fractures and inability to open the MLG door; those assemblies could be subject to the same unsafe condition in AD 2011-15-09. This new proposed AD would require, for certain airplanes, new repetitive inspections for proper operation of the MLG AES, and corrective actions if necessary. This proposed AD would also require eventually replacing the MLG AES cam mechanism assembly with a new assembly, which would terminate the repetitive inspections for those airplanes. We are proposing this AD to prevent improper operation of the cam mechanism or rupture of the door release cable, which could result in loss of control of the airplane during landing.

**DATES:** We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may send comments by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: (202) 493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.
- Hand Delivery: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed AD, contact Bombardier, Inc., Q-Series Technical Help Desk, 123 Garratt Boulevard, Toronto, Ontario M3K 1Y5, Canada; telephone 416-375-4000; fax 416-375-4539; e-mail [thd.qseries@aero.bombardier.com](mailto:thd.qseries@aero.bombardier.com); Internet <http://www.bombardier.com>. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

## **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0129; or in person at the Docket Operations office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Operations office (telephone (800) 647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Cesar Gomez, Aerospace Engineer, Airframe and Mechanical Systems Branch, ANE-171, FAA, New York Aircraft Certification Office, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone (516) 228-7318; fax (516) 794-5531.

## **SUPPLEMENTARY INFORMATION:**

### **Comments Invited**

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2014-0129; Directorate Identifier 2013-NM-105-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD based on those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

## **Discussion**

On July 6, 2011, we issued AD 2011-15-09, Amendment 39-16756 (76 FR 42033, July 18, 2011). AD 2011-15-09 required actions intended to address an unsafe condition on the products listed above.

Since we issued AD 2011-15-09, Transport Canada Civil Aviation (TCCA), which is the aviation authority for Canada, has issued Canadian Airworthiness Directive CF-2011-01R2, dated May 21, 2013 (referred to after this as the Mandatory Continuing Airworthiness Information, or “the MCAI”), to correct an unsafe condition for the specified products. The MCAI states:

Two cases of the main landing gear (MLG) alternate extension system (AES) cam mechanism failure were found during line checks. The cam mechanism operates the cable to open the MLG door and releases the MLG uplock in sequence. In the case where it is necessary to deploy the MLG using the AES, the failure of the MLG AES cam mechanism on one side will lead to an unsafe asymmetrical landing configuration.

Preliminary investigation indicates that the cam mechanism failure may have occurred and remained dormant after a previous AES operation. The cam mechanism may not have fully returned to the normal rested position. With the cam mechanism out of normal rested position, normal powered landing gear door operation could introduce sufficient loads to fracture the cam mechanism or rupture the door release cable.

This [Canadian] AD mandates the initial and subsequent [detailed] inspections for proper operation of the MLG AES cam mechanism, and rectify [repair or replace cam assembly with new or serviceable cam assembly] as necessary.

Since the original issue of this [Canadian] AD, Bombardier Inc. has determined that the existing inspection procedure is insufficient for verification of proper MLG AES cam mechanism operation, and has superseded this inspection procedure. Revision 1 of this [Canadian] AD mandates the use of the revised inspection [and rectification] procedure.

Prior to the introduction of MLG AES cam mechanism assembly part number (P/N) 48510-5 as terminating action, an interim MLG AES cam mechanism assembly P/N 48510-3 was introduced.

Revision 2 of this [Canadian] AD updates the applicability paragraph, updates the MLG AES cam mechanism inspection criteria and mandates the terminating action.

You may examine the MCAI in the AD docket on the Internet at

<http://www.regulations.gov> by searching for and locating it in Docket No. FAA-2014-0129.

### **Relevant Service Information**

Bombardier has issued Repair Drawing 8/4-32-0160, Issue 5, dated June 6, 2012; and Issue 6, dated June 27, 2012. Bombardier has also issued Service Bulletin 84-32-100, Revision A, dated August 30, 2012. The actions described in this service information are intended to correct the unsafe condition identified in the MCAI.

### **FAA's Determination and Requirements of This Proposed AD**

This product has been approved by the aviation authority of another country, and is approved for operation in the United States. Pursuant to our bilateral agreement with

the State of Design Authority, we have been notified of the unsafe condition described in the MCAI and service information referenced above. We are proposing this AD because we evaluated all pertinent information and determined an unsafe condition exists and is likely to exist or develop on other products of the same type design.

### **Repair Approvals**

In many FAA transport ADs, when the service information specifies to contact the manufacturer for further instructions if certain discrepancies are found, we typically include in the AD a requirement to accomplish the action using a method approved by either the FAA or the State of Design Authority (or its delegated agent).

We have recently been notified that certain laws in other countries do not allow such delegation of authority, but some countries do recognize design approval organizations. In addition, we have become aware that some U.S. operators have used repair instructions that were previously approved by a State of Design Authority or a Design Approval Holder (DAH) as a method of compliance with this provision in FAA ADs. Frequently, in these cases, the previously approved repair instructions come from the airplane structural repair manual or the DAH repair approval statements that were not specifically developed to address the unsafe condition corrected by the AD. Using repair instructions that were not specifically approved for a particular AD creates the potential for doing repairs that were not developed to address the unsafe condition identified by the MCAI AD, the FAA AD, or the applicable service information, which could result in the unsafe condition not being fully corrected.

To prevent the use of repairs that were not specifically developed to correct the unsafe condition, certain requirements of this proposed AD specify that the repair approval specifically refer to the FAA AD. This change is intended to clarify the method of compliance and to provide operators with better visibility of repairs that are specifically developed and approved to correct the unsafe condition. In addition, we use the phrase “its delegated agent, or the DAH with State of Design Authority design organization approval, as applicable” in this proposed AD to refer to a DAH authorized to approve certain required repairs for this proposed AD.

### **Costs of Compliance**

We estimate that this proposed AD affects 75 airplanes of U.S. registry.

We estimate the following costs to comply with this proposed AD:

#### **Estimated costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Inspection in AD 2011-15-09, Amendment 39-16756 (76 FR 42033, July 18, 2011)	Up to 24 work-hours X \$85 per hour = up to \$2,040 per inspection cycle	\$2,609	Up to \$4,649 per inspection cycle	Up to \$348,675 per inspection cycle
Inspection [new proposed action]	1 work-hour X \$85 per hour = \$85 per inspection cycle	\$0	\$85 per inspection cycle	\$6,375 per inspection cycle

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Replacement of both cam assemblies [new proposed terminating action]	4 work-hours X \$85 per hour = \$680 [\$340 per cam assembly]	\$7,676 (2 cam assemblies)	\$80,167	\$601,200

### **Authority for This Rulemaking**

Title 49 of the United States Code specifies the FAA’s authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. “Subtitle VII: Aviation Programs,” describes in more detail the scope of the Agency’s authority.

We are issuing this rulemaking under the authority described in “Subtitle VII, Part A, Subpart III, Section 44701: General requirements.” Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### **Regulatory Findings**

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States,



or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

1. Is not a “significant regulatory action” under Executive Order 12866;
2. Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979);
3. Will not affect intrastate aviation in Alaska; and
4. Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

#### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

#### **The Proposed Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

#### **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

2. Amend § 39.13 by removing airworthiness directive (AD) 2011-15-09, Amendment 39-16756 (76 FR 42033, July 18, 2011), and adding the following new AD:

**Bombardier, Inc:** Docket No. FAA-2014-0129; Directorate Identifier

2013-NM-105-AD.

**(a) Comments Due Date**

We must receive comments by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(b) Affected ADs**

This AD supersedes AD 2011-15-09, Amendment 39-16756 (76 FR 42033, July 18, 2011).

**(c) Applicability**

This AD applies to Bombardier, Inc. Model DHC-8-400, -401, and -402 airplanes, certificated in any category, serial numbers 4001, 4003 through 4418 inclusive, 4422 and 4423.

**(d) Subject**

Air Transport Association (ATA) of America Code 32, Landing Gear.

**(e) Reason**

This AD was prompted by a determination that a different MLG AES cam mechanism assembly was installed resulting in input lever fractures and inability to open the MLG door; those assemblies could be subject to the same unsafe condition in the existing AD. We are issuing this AD to prevent improper operation of the cam mechanism or rupture of the door release cable, which could result in loss of control of the airplane during landing.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Retained Detailed Inspection for Proper Operation of the MLG**

This paragraph restates the requirement in paragraph (i) of AD 2011-15-09, Amendment 39-16756 (76 FR 42033, July 18, 2011), with revised service information. For airplanes with a MLG AES Cam Mechanism Assembly having part number (P/N) 48510-1: Within 50 flight hours or 10 days after August 2, 2011 (the effective date of AD 2011-15-09, Amendment 39-16756 (76 FR 42033, July 18, 2011)), whichever occurs first, do a detailed inspection for proper operation of the MLG AES cam mechanism, in accordance with paragraph A) of Bombardier Repair Drawing 8/4-32-0160, Issue 3, dated February 15, 2011; or Bombardier Repair Drawing 8/4-32-0160, Issue 6, dated June 27, 2012. Repeat the inspection thereafter at intervals not to exceed 50 flight hours or 10 days, whichever occurs first. As of the effective date of this AD, use only Bombardier Repair Drawing 8/4-32-0160, Issue 6, dated June 27, 2012.

(1) If the cam mechanism is found to reset to the normal rested position without any sticking or binding, it is operating properly.

(2) If the cam mechanism has not reset to its normal rested position, or if any sticking or binding is observed, before further flight, remove the cam assembly, in accordance with paragraph A) of Bombardier Repair Drawing 8/4-32-0160, Issue 3, dated February 15, 2011; or Bombardier Repair Drawing 8/4-32-0160, Issue 6, dated June 27, 2012, and do the actions in paragraph (g)(2)(i) or (g)(2)(ii) of this AD. As of the

effective date of this AD, use only Bombardier Repair Drawing 8/4-32-0160, Issue 6, dated June 27, 2012.

(i) Repair the cam mechanism assembly, including doing detailed inspections for discrepancies (an inspection to determine proper operation, an inspection for damage, an inspection for corrosion and cadmium coating degradation, and inspections to determine dimensions are within the limits specified in paragraph B) of Bombardier Repair Drawing 8/4-32-0160, Issue 3, dated February 15, 2011; or Bombardier Repair Drawing 8/4-32-0160 Issue 6, dated June 27, 2012, in accordance with paragraph B) of Bombardier Repair Drawing 8/4-32-0160, Issue 3, dated February 15, 2011; and install the repaired cam assembly in accordance with paragraph C) of Bombardier Repair Drawing 8/4-32-0160, Issue 3, dated February 15, 2011; or Bombardier Repair Drawing 8/4-32-0160, Issue 6, dated June 27, 2012. As of the effective date of this AD, use only Bombardier Repair Drawing 8/4-32-0160, Issue 6, dated June 27, 2012.

(ii) Install a new or serviceable cam assembly, in accordance with paragraph C) of Bombardier Repair Drawing 8/4-32-0160, Issue 3, dated February 15, 2011; or Bombardier Repair Drawing 8/4-32-0160, Issue 6, dated June 27, 2012. As of the effective date of this AD, use only Bombardier Repair Drawing 8/4-32-0160, Issue 6, dated June 27, 2012.

(3) If the cam mechanism is found damaged or inoperative during the repair specified in paragraph (g)(2)(i) of this AD, or if any discrepancies are found and Bombardier Repair Drawing 8/4-32-0160, Issue 3, dated February 15, 2011; or Bombardier Repair Drawing 8/4-32-0160, Issue 6, dated June 27, 2012; does not specify

repairs for those discrepancies, or repairs specified in paragraph (g)(2)(i) of this AD cannot be accomplished: Before further flight, repair and reinstall using a method approved by the Manager, ANE-170, New York Aircraft Certification Office (ACO), FAA, or the TCCA (or its delegated agent, or the Design Approval Holder with TCCA's design organization approval, as applicable); or install a new or serviceable cam assembly, in accordance with paragraph C) of Bombardier Repair Drawing 8/4-32-0160, Issue 3, dated February 15, 2011; or Bombardier Repair Drawing 8/4-32-0160, Issue 6, dated June 27, 2012. As of the effective date of this AD, use only Bombardier Repair Drawing 8/4-32-0160, Issue 6, dated June 27, 2012, to install the cam assembly.

**(h) New Inspection for Proper Operation of the MLG Replacement Part**

For airplanes with a MLG AES cam mechanism assembly having P/N 48510-3: Within 1,800 flight hours or 9 months after installation of the assembly, whichever occurs first after the effective date of this AD, do a detailed inspection for proper operation of the MLG AES cam mechanism, in accordance with paragraph A) of Bombardier Repair Drawing 8/4-32-0160, Issue 6, dated June 27, 2012. Repeat the inspection thereafter at intervals not to exceed 600 flight hours or 3 months, whichever occurs first.

(1) If the cam mechanism is found to reset to the normal rested position without any sticking or binding, it is operating properly.

(2) If the cam mechanism has not reset to its normal rested position, or if any sticking or binding is observed, before further flight, remove the cam assembly, in accordance with paragraph A) of Bombardier Repair Drawing 8/4-32-0160, Issue 6,

dated June 27, 2012, and do the actions required by paragraphs (h)(2)(i) or (h)(2)(ii) of this AD.

(i) Repair the cam mechanism assembly, including doing detailed inspections for discrepancies (an inspection to determine proper operation, an inspection for damage, an inspection for corrosion and cadmium coating degradation, and inspections to determine dimensions are within the limits specified in paragraph B) of Bombardier Repair Drawing 8/4-32-0160, Issue 6, dated June 27, 2012), in accordance with paragraph B) of Bombardier Repair Drawing 8/4-32-0160, Issue 6, dated June 27, 2012; and install the repaired cam assembly in accordance with paragraph C) of Bombardier Repair Drawing 8/4-32-0160, Issue 6, dated June 27, 2012.

(ii) Install a new or serviceable cam assembly, in accordance with paragraph C) of Bombardier Repair Drawing 8/4-32-0160, Issue 6, dated June 27, 2012.

(3) If the cam mechanism is found damaged or inoperative during the repair specified in paragraph (h)(2)(i) of this AD; or if any discrepancies are found and Bombardier Repair Drawing 8/4-32-0160, Issue 6, dated June 27, 2012, does not specify repairs for those discrepancies; or repairs specified in paragraph (h)(2)(i) of this AD cannot be accomplished: Before further flight, do the applicable actions required by paragraph (h)(3)(i) or (h)(3)(ii) of this AD.

(i) Repair and reinstall using a method approved by the Manager, ANE-170, New York ACO, FAA, or Transport Canada Civil Aviation (TCCA) (or its delegated agent, or the Design Approval Holder with TCCA's design organization approval, as applicable).

For a repair method to be approved, the repair approval must specifically refer to this AD.

(ii) Install a new or serviceable cam assembly, in accordance with paragraph C) of Bombardier Repair Drawing 8/4-32-0160, Issue 6, dated June 27, 2012.

**(i) New Credit for Previous Actions**

This paragraph provides credit for actions required by paragraphs (g) and (h) of this AD, if those actions were performed before the effective date of this AD using Bombardier Repair Drawing 8/4-32-0160, Issue 5, dated June 6, 2012.

**(j) New Terminating Action**

Within 6,000 flight hours or 36 months after the effective date of this AD, whichever occurs first, replace any MLG AES cam mechanism assembly having P/N 48510-1 or P/N 48510-3 with a new MLG AES cam mechanism assembly having P/N 48510-5, in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 84-32-100, Revision A, dated August 30, 2012. Accomplishing this replacement terminates the repetitive inspections required by this AD.

**(k) New Credit for Previous Actions**

This paragraph provides credit for actions required by paragraphs (j) of this AD, if those actions were performed before the effective date of this AD using Bombardier Service Bulletin 84-32-100, dated August 15, 2012.

**(l) Other FAA AD Provisions**

The following provisions also apply to this AD:

**(1) Alternative Methods of Compliance (AMOCs):** The Manager, New York Aircraft Certification Office (ACO), ANE-170, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. ATTN: Program Manager, Continuing Operational Safety, FAA, New York ACO, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7300; fax 516-794-5531. Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office. The AMOC approval letter must specifically reference this AD.

**(2) Airworthy Product:** For any requirement in this AD to obtain corrective actions from a manufacturer, use these actions if they are FAA-approved. Corrective actions are considered FAA-approved if they were approved by the State of Design Authority (or its delegated agent, or the DAH with a State of Design Authority's design organization approval, as applicable). You are required to ensure the product is airworthy before it is returned to service.

**(m) Related Information**

(1) Refer to Mandatory Continuing Airworthiness Information (MCAI) Canadian Airworthiness Directive CF-2011-01R2, dated May 21, 2013, for related information. This MCAI may be found in the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0129.

(2) For service information identified in this AD, contact Bombardier, Inc.,



Q-Series Technical Help Desk, 123 Garratt Boulevard, Toronto, Ontario M3K 1Y5, Canada; telephone 416-375-4000; fax 416-375-4539; email [thd.qseries@aero.bombardier.com](mailto:thd.qseries@aero.bombardier.com); Internet <http://www.bombardier.com>. You may view this service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

Issued in Renton, Washington, on February 26, 2014.

Jeffrey E. Duven,  
Manager,  
Transport Airplane Directorate,  
Aircraft Certification Service.

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